September 2001

Iraq

Iraq holds more than 112 billion barrels of oil - the world's second largest proven reserves. Iraq also contains 110 trillion cubic feet of gas, and is a focal point for regional security issues.

Note: The information contained in this report is the best available as of September 2001 and can change. Also, please click here for a complete chronology of events pertaining to Iraq from 1980 through 2001.

GENERAL BACKGROUND

During the 1980s and 1990s, Iraq experienced two major wars (Iran-Iraq and the Kuwait war), as well as over a decade of economic sanctions. As a result, the country's economy, infrastructure, and society are in very bad shape. Iraq's gross domestic product (GDP) has fallen sharply since before the Iraqi invasion of Kuwait, with per-capita income and living standards far below pre-war levels. On the other hand, increased oil production and prices resulted in estimated Iraqi real GDP growth of 18% in 1999 and 4% in 2000. For 2001, with oil production and prices flat or even down somewhat, Iraq's real GDP growth is forecast at -10%. For 2002, Iraq's real GDP growth is expected to rebound to 15%. Inflation currently is estimated at around 80% (down from 100% in 2000), with unemployment (and underemployment) high as well. Iraq's merchandise trade surplus is over $3 billion, although much of this is under United Nations (UN) control. Iraq has a heavy debt burden, possibly as high as $140 billion if debts to Gulf states and Russia are included. Iraq also has no meaningful taxation system, plus erratic fiscal and monetary policies. As of August 2001, the dinar had slipped to around 1,900 per dollar on the black market, from around 900 dinars per U.S. dollar at the beginning of 2000.

On February 26, 2001, US Secretary of State Colin Powell proposed a modification of sanctions on Iraq, more carefully targeting them towards military items sought by the Iraqi government, while allowing freer movement of civilian goods. In early May, Powell stated that the United States wanted "to revise the sanctions policy so that it is directed exclusively at preventing Iraq from a military buildup and developing weapons of mass destruction." In early July 2001, facing an almost certain Russian veto, the UN Security Council agreed to postpone indefinitely a vote on the U.S. "smart sanctions" plan, and extended the oil-for-food program another 5 months. Following this, Iraq resumed oil exports, which it had halted on June 4 in protest of the plan.

As of late September 2001, a dispute within the UN Security Council continued over a U.K. proposal (supported by the United States) to alter the duration (from 30 days to 15 days) whereby Iraqi oil prices are set. The United States and the United Kingdom are concerned that Iraq is using oil price fluctuations to impose a de facto surcharge on oil purchasers, and that this money goes directly to the Iraqi government outside of UN control. As in the case of the "smart sanctions" proposal, Russia once again is supporting Iraq and blocking the U.K.-U.S. proposal. The United States and the United Kingdom also are attempting to stop Iraq from forcing buyers to pay a $0.30-$0.60 per barrel surcharge, paid directly to the Iraqi government.

On October 31, 2000, the UN Sanctions Committee approved an Iraqi request to be paid in Euros, rather than U.S. dollars, for oil exported under the "oil for food" program. On November 16, Iraq's State Oil Marketing Organization (SOMO) demanded that companies lifting cargoes of Iraqi crude oil begin paying a fifty cent per barrel surcharge directly to the Iraqi government (in violation of UN sanctions) starting on December 1, 2000. On December 13, Iraq resumed exports of crude oil after a disruption of nearly two weeks due to a dispute over this issue. In April 2001, the US State Department urged US oil companies to "take all necessary steps to ensure that any Iraqi-origin crude you acquire has not been tainted by the payment...of an illegal surcharge."

Iraq has been working in recent months to improve relations with a number of countries, with mixed results. In late August 2000, Venezuela's President Hugo Chavez met with Saddam Hussein, a move that was strongly condemned by the United States. In November 2000, Saudi Arabia opened a border crossing point with Iraq to facilitate Saudi exports to Iraq under the United Nations "oil for food" program. The land border had been closed since the Iraqi invasion of Kuwait in 1990. In January 2001, Iraq signed free-trade deals with Egypt and Syria, and in August 2001, Syria's Prime Minister visited Baghdad. In April 2001, Iraqi Vice President Taha Hussein Ramadan met Russian President Vladimir Putin, the highest-level Iraqi-Russian contact in several years. In June 2001, however, in an apparent blow to Iraqi-Saudi relations, Saudi Arabia announced that it had seized ownership of the 1.6-million-barrel-per-day IPSA pipeline that had carried Iraqi crude oil to the Saudi Red Sea port of Yanbu (Mu'jiz) prior to Iraq's invasion of Kuwait. The seizure included pumping stations, storage tanks, and the maritime terminal. Saudi Arabia claimed that the pipeline was confiscated as a result of aggressive Iraqi actions. Iraq insisted that it still owned the pipeline. In another negative development, in September 2001, Iraq's foreign minister, Dr. Naji Sabri, warned Kuwait over oil production near the Iraqi-Kuwait border, specifically at the al-Rakba field, an extension of Iraq's al-Rumaila field.

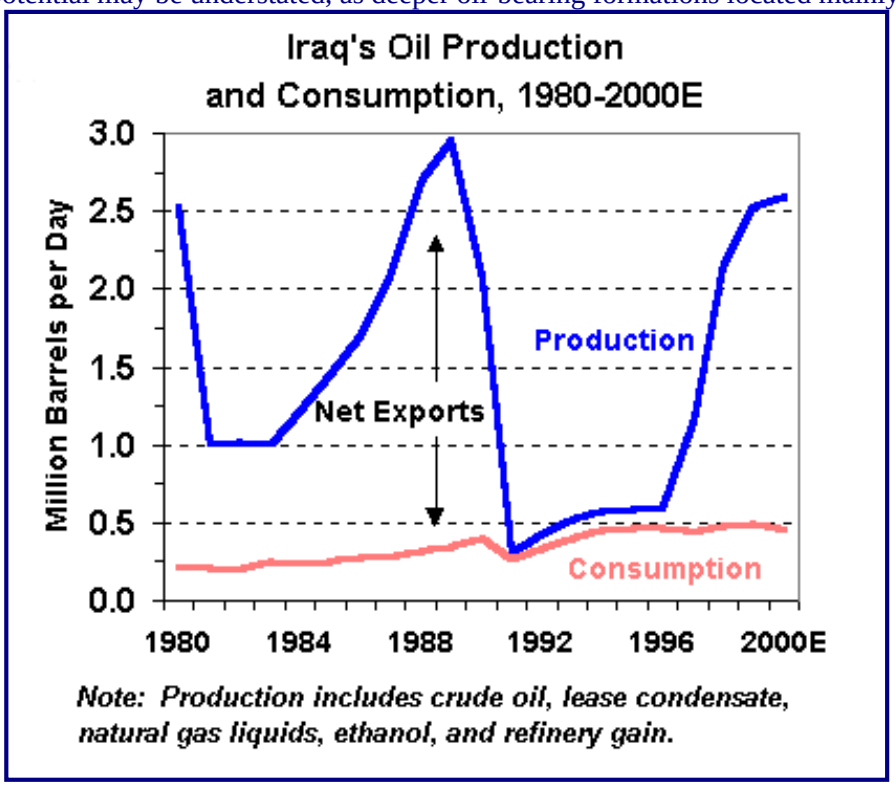
In November 2000, numerous press reports indicated that Syria and Iraq had reopened the 552-mile-long, Kirkuk-Banias pipeline, with the Middle East Economic Digest (MEED) reporting initial deliveries of Iraqi crude oil through the line (and also possibly by rail) at around 140,000-150,000 bbl/d (capacity prior to 1982 was 300,000 bbl/d). The oil, most likely Basra Light, reportedly is being used in Syrian domestic refineries, thus freeing up more Syrian oil for export to world markets, earning Syria extra hard currency oil export revenues (and also earning Saddam Hussein significant revenues outside the UN "oil for food" program). Since Iraqi oil exports are allowed only via approved export routes, use of the Kirkuk-Banias line would represent a potentially serious breach of UN sanctions against Iraq. On January 23, 2001, the Bush administration offered to allow Iraqi oil exports through Syria as long as they were regulated by the UN "oil for food" program.

On September 19, Iraq denied any connection or involvement with the the September 11, 2001

terrorist attacks on the World Trade Center and Pentagon. The United States and the United Kingdom continue to maintain "no-fly zones" over Iraq, and to carry out bombing of various targets periodically.

OIL

Iraq contains 112 billion barrels of proven oil reserves, the second largest in the world (behind Saudi Arabia) along with roughly 215 billion barrels of probable and possible resources. Iraq's true resource potential may be understated, as deeper oil-bearing formations located mainly in the Western Desert region could yield additional resources, but have not been explored. Iraqi oil reserves vary widely in quality, with API gravities in the 24º to 42º range. Iraq's main export crudes come from the country's two largest active fields: Rumaila and Kirkuk. The southern Rumaila field produces three streams: Basra Regular (normally 34º API, 2.1% sulfur, but apparently deteriorating); Basra Medium (30º API, 2.6% sulfur); and Basra Heavy (22º-24º API, 3.4% sulfur). The northern Kirkuk field normally produces 37º API, 2% sulfur crude, although the API gravity reportedly has fallen in recent years. An additional export crude, known as "Fao Blend," is heavier and more sour, with a 27º API and 2.9% sulfur.



In September 1999, more than 50 foreign companies attended an oil and gas technology exhibition in Baghdad, the first such gathering in 10 years. Most of the firms were from the Canada, France, Italy, and the United Kingdom. No U.S. firms attended, although a high-level Iraqi oil official has stated that Iraq is ready to deal with U.S. oil companies.

To help attract foreign investment to the country's energy sector, Iraq's oil ministry recently introduced amendments to existing development and production contracts (DPCs). Among other things, the duration of DPCs has been reduced from 23 to 12 years. In addition, Iraq has added a clause referring to "an explicit commitment to achieve target production within a set period."

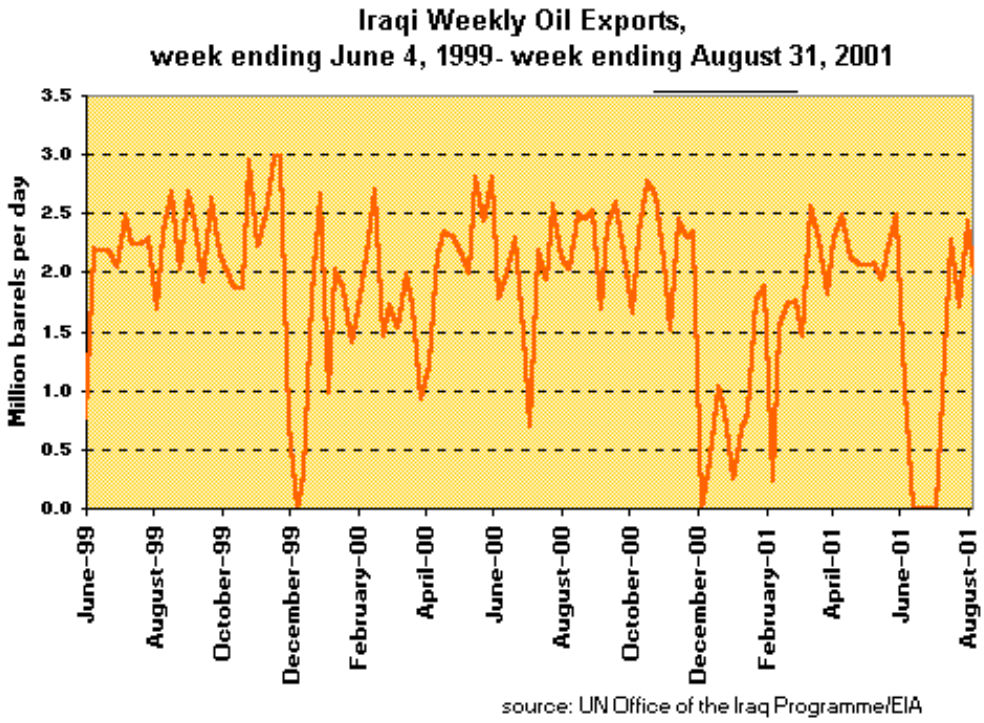
Production

Following Iraq's invasion of Kuwait and the embargo on Iraqi oil exports, Iraqi oil production fell to around 300,000 bbl/d (from 3.5 MMBD in July 1990). For 2000, Iraqi crude oil production averaged 2.6 MMBD. Iraqi officials had hoped to increase the country's oil production to 3.5 MMBD by the end of 2000, but now appear to have acknowledged that this was probably not realistic, given technical problems with Iraqi oil fields, export terminals, pipelines, and other oil infrastructure. Industry experts generally assess Iraq's *sustainable* production capacity at no higher than 2.8 MMBD, and more likely closer to 2.6 MMBD, with net export potential of around 2.0-2.2 MMBD. (Note: Iraq has produced 3.0 MMBD or slightly more in several months over the past year, but whether or not this is "sustainable" is an open question.) Among other problems, Iraq's battle with "water cut" is a

major challenge, especially in the south. In October 1999, oil consulting firm Saybolt International reported that Iraq has been able to increase its oil production through use of short-term techniques not generally considered acceptable in the oil industry. A new UN report in June 2001 said that Iraqi oil production capacity would fall sharply unless technical and infrastructure problems were addressed. The report estimated, for instance, that production in the Kirkuk region could fall by 50% over 12 months, to 500,000 bbl/d, and that output at South Rumaila also could be reduced sharply unless immediate actions were taken. Iraq hopes to counter this by a large-scale program to drill new wells (417 are planned, most of which are to be carried out by Russian, Chinese, Iraqi, and Romanian companies).

Exports

UN Resolution 986 (April 1995) allows Iraq to sell specified dollar amounts of crude oil over six-month periods, in part for the purchase of humanitarian supplies ("oil for food") for distribution in Iraq under UN supervision. In December 1999, with Iraq steadily increasing its oil export revenues, the Security Council voted to remove any limits on the amount of oil Iraq could export. The current phase (Phase X) runs through the end of November 2001. Remaining proceeds are used to pay compensation for Gulf War victims, pipeline transit fees for Turkey, and funding for U.N. weapons monitoring activities.



During the first six months of 2001, Iraq averaged oil production of 2.29 million barrels per day, with large weekly and monthly fluctuations. For the last full year (2000), Iraq averaged net oil exports of around 2 MMBD. Besides the 70,000-90,000 bbl/d or so going to Jordan legally (i.e., with UN permission), and the 450,000-500,000 bbl/d or so consumed domestically, the rest (not counting illegally smuggled oil and oil products) was exported either through the Iraq-Turkey pipeline or the Persian Gulf port of Mina al-Bakr. Although U.N. Resolution 986 mandates that at least half of the "oil-for-food" exports must transit through Turkey, it appears that in recent months more Iraqi oil (close to three-quarters) has been exported via Mina al-Bakr than via Ceyhan. Iraqi oil commonly is sold initially to Russian firms (i.e., Machinoimport, Rosneftegasexport, Sidanco, Slavneft, Zarubzhneft), with other large purchasers including Italian (Italtech), Malaysian (Mastek), French and Chinese companies. Oil is then resold to a variety of oil companies, including over 600,000 bbl/d to the United States (overwhelmingly Basra Light oil) through third parties. During 2000, US importers of Iraqi crude oil included ExxonMobil, Chevron, Premcor, Valero, Koch, Phillips, Tosco,

Lyondell/Citgo, BP, Clark, Fina, Marathon Ashland, and others. Major customers for Kirkuk oil in 2000 included Italy (21%), France (16%), Spain and Portugal (14%).

In March 2000, U.N. Security Council agreed to double the spending cap for oil sector spare parts and equipment (under Resolution 1175 of June 20, 1998), allowing Iraq to spend up to $600 million every 6 months repairing oil facilities. U.N. Secretary General Kofi Annan had warned of a possible "major breakdown" in Iraq's oil industry if spare parts and equipment were not forthcoming. In August 2000, a senior Iraqi oil official stated that delays by the United Nations in approving contracts to upgrade Iraq's oil sector were threatening production levels. The United States has said that the $300 million should be used only for short-term improvements to the Iraqi oil industry, and not to make long-term repairs. Iraq claimed in August 2000 that 508 contracts were on hold or pending approval by the United Nations. Of this total, 440 were "held" by the United States, according to Iraq's oil ministry. The *Financial Times* has reported that several US oil service companies have submitted contracts indirectly, through their foreign subsidiaries.

In addition to U.N.-sanctioned oil exports to Jordan, there have been periodic reports that Iraq has smuggled up to 450,000 bbl/d of crude oil and products via a number of routes. These include: to Turkey (as high as 100,000-150,000 bbl/d) and Jordan (possibly 10,000-30,000 bbl/d above domestic needs) via truck -- with discussion of a possible 250,000-bbl/d pipeline as well; to Syria (150,000 bbl/d or more; see above for details), mainly via the Kirkuk-Banias pipeline, to Iran along the Gulf coast and via Qais Island, and to Dubai with the use of small tankers sailing from Umm Qasr. Press reports also have estimated that these illegal shipments may be providing Iraq with as much as $600 million-$2 billion per year in illegal revenues. In April 2000, the U.S. Navy stopped a Russian tanker, the Akademik Pustovoit, which it suspected might be smuggling Iraqi oil. The United Nations later determined that around 20% of the vessel's gasoil cargo (which Shell said it owned) was of Iraqi origin. In April 2001, an Iraqi-owned vessel -- the Zainab -- sunk off the Dubai coast, leaking over 1,000 tons of smuggled diesel oil and polluting Gulf waters and UAE beaches.

Oil Field Development, War, and Current Status

Iraq's southern oil industry was decimated in the Gulf War, with production capacity falling to 75,000 bbl/d in mid-1991. The largest producing oil field in this region is Rumaila. The war resulted in destruction of gathering centers and compression/degassing stations at Rumaila, storage facilities, the 1.6-MMBD (pre-war capacity) Mina al-Bakr export terminal, and pumping stations along the 1.4-MMBD (pre-war capacity) Iraqi Strategic (North-South) Pipeline. Seven other sizable fields remain damaged or partially mothballed. These include Zubair, Luhais, Suba, Buzurgan, Abu Ghirab, and Fauqi. Generally speaking, oilfield development plans have been on hold since Iraq's invasion of Kuwait, with Iraqi efforts focused on maintaining production at existing fields.

The Kirkuk field, with over 10 billion barrels in remaining proven oil reserves, forms the basis for northern Iraqi oil production. Bai Hassan (110,000 bbl/d), Jambur (75,000 bbl/d), Khabbaz (30,000 bbl/d), Saddam (25,000 bbl/d), and Ain Zalah-Butmah-Safaia (17,000 bbl/d) are the other currently-producing oil fields in northern Iraq. An estimated 60% of Northern Oil Company's (NOC) facilities in northern and central Iraq were damaged during the Gulf War. At the end of 2000, production at Kirkuk was estimated at around 900,000 bbl/d, with output from all northern fields (Bai Hassan, Jambar, Khabbaz, Saddam, Safiya, and 'Ain Zalah/Butnah) nearly 1.2 MMBD. Iraq's southern fields -- mainly North Rumaila (750,000 bbl/d) and South Rumaila (500,000 bbl/d), plus al-Zubair (240,000 bbl/d), the Missan fields (160,000 bbl/d), West Qurna (120,000 bbl/d), Luhais (30,000 bbl/d), and Bin Umar (10,000 bbl/d) -- were producing around 1.8 MMBD. In early December 1999, Russian energy company Zarubezhneft said that it was drilling multiple wells at Kirkuk, and that this did not violate U.N. sanctions (Russian officials have denied that any work was being done). Zarubezhneft hopes to boost Kirkuk production capacity from its current 900,000 bbl/d to around 1.1 MMBD. Zarubezhneft also has a contract to drill approximately 100 wells in the North Rumaila field.

Another major Iraqi oil field is the 11-billion barrel East Baghdad field, which came online in April 1989. This centrally-located field currently produces 50,000 bbl/d of heavy, 23º API oil as well as 30

million cubic feet per day (Mmcf/d) of associated natural gas.

The Post-U.N. Sanctions Development Plan

Following the lifting of UN sanctions, Iraq hopes to increase its oil production capacity to over 6 million bbl/d or higher (in August 2001, Oil Minister Rashid boasted that Iraq could reach 10 million bbl/d). As of May 2001, Iraq reportedly had signed several multi-billion dollar deals with foreign oil companies, mainly from China, France, and Russia (U.S., Canadian, and Vietnamese firms also reportedly have held discussions). Iraq reportedly has become increasingly frustrated, however, at the failure of these companies actually to begin work on the ground, and has threatened to no longer sign deals unless firms agreed to do so without delay. Iraqi upstream oil contracts generally require that companies start work immediately, but UN sanctions overwhelmingly have dissuaded companies from doing so.

Russia, which is owed several billions of dollars by Iraq for past arms deliveries, has a $3.5-billion, 23-year deal with Iraq to rehabilitate Iraqi oilfields, particularly the 15-billion-barrel West Qurna field (located west of Basra near the Rumaila field). Since a deal was signed in March 1997, Russia's Lukoil (the operator, heading a Russian consortium plus an Iraqi company to be selected by the Iraqi government) has prepared a plan to install equipment with capacity to produce 100,000 bbl/d from West Qurna's Mishrif formation. Meanwhile, in August 2000, Iraqi engineers reportedly completed work on two degassing stations at West Qurna, with two more planned for 2001, potentially raising production at the field (one of the world's largest) to around 400,000 bbl/d. West Qurna is believed to have potential production capacity of up to 1 MMBD. In October 1999, Russian officials reportedly said that Iraq had accepted a Russian request to delay work on West Qurna given the continuation of U.N. sanctions. This followed an Iraqi warning that Lukoil could lose its contract (and possibly be replaced by another Russian company) at West Qurna if it did not begin work immediately (Lukoil has been restrained from doing so by U.N. sanctions). In October 2000, the Iraqi Oil Ministry expressed frustration with the slow pace of progress by Russian and Chinese firms, and in January 2001, Shell announced that it had held talks with the Iraqi Oil Ministry regarding "potential opportunities" at the 1-billion-barrel Ratawi oilfield. In March 2001, the Deputy Oil Minister announced that Iraq might terminate contracts with the Chinese and Russian companies.

As of August 2001, a joint Russian-Belarus oil company, Slavneft, was reported to be in talks with Iraqi officials on the billion-barrel, Suba-Luhais field in southern Iraq, and expecting to sign a service contract to begin drilling later this year. Full development of Suba-Luhais could result in production of 100,000 bbl/d at a cost of $300 million over three years.

The Saddam field contains 3 billion barrels of oil and 5 trillion cubic feet (Tcf) of associated gas. Iraq is seeking foreign assistance for a second-phase Saddam development, which would raise oil production capacity to 50,000 bbl/d, as well as 300 Mmcf/d of gas. As of early April 2001, Russia's Tatneft and Zarubezhneft reportedly had received UN approval to drill 45 wells in the Saddam field, plus Kirkuk and Bai Hassan, as part of an effort to reduce water incursion into the fields.

Besides West Qurna, PSCs for the three other large southern oil fields are in various stages of negotiation. The largest of the fields is Majnoon, with reserves of 10-30 billion barrels of 28º-35º API oil, and located 30 miles north of Basra on the Iranian border. French company TotalFinaElf reportedly has negotiated with Iraq on development rights for Majnoon. Initial output at Majnoon is expected to be 300,000 bbl/d, with later development yielding 600,000 bbl/d or more. Ultimate production potential is estimated at up to 2 MMBD. As of September 1999, Elf and Total reportedly needed only "the stroke of the pen" to complete deals on Majnoon and the 6-billion barrel Nahr Umar field. However, in December 1999, Iraq threatened that the two companies would lose their "preferential treatment" if France did not provide sufficient support to Iraq on the U.N. Security Council. In July 2001, angered by France's perceived support for the U.S. "smart sanctions" plan, Iraq announced that it would no longer give French companies priority in awarding oil contracts, and would reconsider existing contracts as well. Iraq also announced that it was inclined to favor Russia, which has been supporting Iraq at the UN Security Council, on awarding rights to Majnoon and Nahr

Umar development.

TotalFinaElf apparently has all but agreed with Iraq on development of the Nahr Umar field. Initial output from Nahr Umar is expected to be around 440,000 bbl/d of 42º API crude, but may reach 500,000 bbl/d with more extensive development. The 5-billion barrel Halfaya project is the final large field development in southern Iraq. Several companies (BHP, CNPC, Agip) reportedly have shown interest in the field, which ultimately could yield 200,000-300,000 bbl/d in output.

Smaller fields with under 2 billion barrels in reserves also are receiving interest from foreign oil companies. These fields include Nasiriya (Agip, Repsol), Tuba (Sonatrach, Pertamina, Reliance), Ratawi (Shell, Petronas, CanOxy, Crescent), Gharaf (Japex, TPAO), and more. Italy's Agip and Spain's Repsol appear to be strong possibilities to develop Nasiriya.

In addition to the 25 new field projects, Iraq plans to offer foreign oil companies service contracts to apply technology to 8 already-producing fields. Meanwhile, Iraq has authorized "risk contracts" to promote exploration in the nine remote Western Desert blocs. Iraq has identified at least 110 prospects from previous seismic work in this region near the Jordanian and Saudi borders. In late 2000, India's ONGC was awarded Block 8 in the Western Desert region.

Oil Export Pipelines/Terminals

The 600-mile, 40-inch Kirkuk-Ceyhan pipeline is Iraq's largest operable crude export pipeline. This Iraq-Turkey link consists has a fully-operational capacity of 1.1 MMBD, but reportedly can handle only around 900,000 bbl/d. A second, parallel, 46-inch line has an optimal capacity of 500,000 bbl/d and was designed to carry Basra Regular exports, but at last report was inoperable. Combined, the two parallel lines have an optimal capacity of 1.5-1.6 MMBD. Expanding capacity to this level, however, will depend on Iraq's ability to rehabilitate the IT-1 and IT-1A pumping stations, as well as the Zakho metering station near the Iraq-Turkey border and other ongoing pipeline repairs (including so-called "intelligent pigging") on the 46-inch line. This work appears to be well behind schedule, and reportedly will not be completed anytime soon. The 40-inch line has additional pumping stations and fewer bottlenecks than the 46-inch line, which allows for greater throughput than that of the larger line. Currently, Iraq is bypassing the crucial but damaged IT-2 pumping station, located about 93 miles south of the Turkish border, making it more difficult to reach the 1.6 MMBD dual-line capacity. To make IT-2 operational, Iraqi officials have said that they need controls and associated valves costing around $50 million. As of early 2001, Iraqi oil ministry officials were claiming that the station would be operational by mid-2001. The IT-1 pumping station near Kirkuk received lighter damage and is presently functional.

On August 20, 1998, Iraq and Syria (which reopened their border in June 1997 -- after a 17-year closure -- for trade and official visits) signed a memorandum of understanding for the possible reopening of the 50-year-old, rusting Banias oil pipeline from Iraq's northern Kirkuk oil fields to Syria's Mediterranean port of Banias (and Tripoli, Lebanon). As of April 2001, the pipeline reportedly was being used (see above), and there also was talk of building a new, parallel pipeline as a replacement.

In order to optimize export capabilities, Iraq constructed a reversible, 1.4-MMBD "Strategic Pipeline" in 1975. This pipeline consists of two parallel 700,000-bbl/d lines. The North-South system allows for export of northern Kirkuk crude from the Persian Gulf and for southern Rumaila crudes to be shipped through Turkey. During the Gulf War, the Strategic Pipeline was disabled after the K-3 pumping station at Haditha as well as four additional southern pumping stations were destroyed. As of early 2001, Iraqi oil ministry officials were claiming that the pipeline had been rehabilitated, providing Iraq with increased export flexibility. However, a UN assessment team which visited Iraq in March 2001 concluded that the country's downstream sector "had declined seriously in many respects" over the past 18 months, including increased leakage from pipelines, particularly the North-South "Strategic" line.

In the Persian Gulf, Iraq has three tanker terminals: at Mina al-Bakr, Khor al-Amaya, and Khor al-Zubair (which mainly handles dry goods). Iraq also has additional dry goods ports at Basra and at Umm Qasr, which is being outfitted to accommodate crude tankers. Mina al-Bakr is Iraq's largest oil terminal, with four 400,000-bbl/d capacity berths capable of handling very large crude carriers (VLCCs). Gulf War damage to Mina al-Bakr appears to have been repaired in large part and the terminal currently can handle up to 1.3-1.4 MMBD. A full return to Mina al-Bakr's nameplate capacity apparently would require extensive infrastructure repairs. Mina al-Bakr also is constrained by a shortage of separation and storage facilities, most of which were destroyed in the Gulf War.

Iraq's Khor al-Amaya terminal was virtually destroyed during the Iran-Iraq War, and has been out of commission since then. As of March 2001, reports indicated that Iraq had largely completed repairing two berths at Khor al-Amaya. According to the Iraqi Oil Ministry, the terminal, with export capacity of 500,000-700,000 bbl/d, would "soon be ready to receive oil tankers." Upon full completion of repairs, Iraq projects Khor al-Amaya's capacity will rise to 1.2 MMBD, and will help prevent delays at Mina al-Bakr while repairs are conducted there. Iraq will need UN Security Council approval to export from Khor al-Amaya, since it is not part of the approved export outlet of Mina al-Bakr.

Refining

Iraq's current refining capacity as of September 2001 was believed to be around 350,000-400,000 bbl/d (although the Iraqis claim 700,000 bbl/d), compared to a pre-Gulf War, nameplate capacity of 700,000 bbl/d. Iraq has 10 refineries and topping units. The largest are the 150,000-bbl/d Baiji North, 140,000-bbl/d (or higher) Basra, and 100,000-bbl/d Daura plants. During the Gulf War, both Baiji in northern Iraq as well as the refineries at Basra, Daura, and Nasiriyah were severely damaged. Today, a lack of light-end products, low quality gasoline, and rising pollution levels because of a lack of water treatment facilities are some problems faced by Iraq's refining sector. Post-sanction plans include attracting foreign investment to perform refinery upgrades (Iraq has identified dozens of such projects) and to build a new $1-billion, 290,000-bbl/d "Central" refinery near Babylon.

NATURAL GAS

Iraq contains 110 trillion cubic feet (Tcf) of proven natural gas reserves, along with roughly 150 Tcf in probable reserves. About 70% of Iraq's gas reserves are associated gas (gas produced in conjunction with oil), with the rest made up of non-associated gas (20%) and dome gas (10%). Until 1990, all of Iraq's natural gas production was from associated fields. In 1999, Iraq produced 112 billion cubic feet (Bcf) of gas, down drastically from peak output levels of 700 Bcf in 1979. Within two years after the lifting of U.N. sanctions, Iraq hopes to produce 550 Bcf of gas. Within a decade, Iraq aims to be producing about 4.2 Tcf of gas annually. Since most of Iraq's gas is associated with oil, progress on increasing the country's oil output will directly affect the gas sector as well. Gas is both produced with oil and also used for reinjection for enhanced oil recovery efforts. In October 1997, Iraq invited international partners to invest in natural gas projects worth $4.2 billion. Generally, Iraq's policy is to award gas and oil concessions to companies from countries supporting the easing or lifting of U.N. sanctions (i.e., France, China, Russia).

Main sources of associated gas are the Kirkuk, Ain Zalah, Butma, and Bai Hassan oil fields in northern Iraq, as well as the North and South Rumaila and Zubair fields in the south. The Southern Area Gas Project was completed in 1985, but was not brought online until February 1990. It has nine gathering stations and a larger processing capacity of 1.5 billion cubic feet per day. Gas gathered from the North and South Rumaila and Zubair fields is carried via pipeline to a 575-Mmcf/d natural gas liquids (NGL) fractionation plant in Zubair and a 100-Mmcf/d processing plant in Basra. At Khor al-Zubair, a 17.5-million-cubic-foot LPG storage tank farm and loading terminals were added to the southern gas system in 1990. In November 2000, the Siberian-Urals Petrochemical Company (SIBUR) reportedly submitted a plan to utilize associated gas from Iraq's southern oil fields.

Iraq's only non-associated gas production is from the al-Anfal field (200 Mmcf/d of output) in northern Iraq. Al-Anfal production is piped to the Jambur gas processing station near the Kirkuk field, which is 20 miles away. Al-Anfal's gas resources are estimated at 4.5 Tcf, of which 1.8 Tcf is proven.

In August 2001, Iraqi oil minister Rashid announced that Iraq had reached an agreement with Turkey to build a $2.5 billion gas pipeline to Turkey, and possibly on to Europe. Iraq aims to increase its natural gas exports to Europe, and Turkey could be a key transit center.

ELECTRIC POWER

Around 85%-90% of Iraq's national power grid (and 20 power stations) was damaged or destroyed in the Gulf War. Existing generating capacity of 9,000 megawatts (MW) in December 1990 was reduced to only 340 MW by March 1991. In early 1991, transmission and distribution infrastructure also was destroyed, including the 10 substations serving Baghdad and about 30% of the country's 400-kilovolt (kV) transmission network. In early 1992, Iraq stated that it had restarted 75% of the national grid, including the 1,320-MW Baiji and Mosul thermal plants as well as the Saddam Dam. In 1998, Iraq's maximum available electric generation capacity was estimated (by Iraq) at around 4,000 MW, with a report in November 1999 indicating that this figure may have increased even further, to 6,000 MW. According to a report by UN Secretary General Kofi Annan, Iraq's power deficit stood at 1,800 MW as of August 2000, with blackouts a common occurrence. Iraq reportedly has signed contracts for renovating two generation units at the Harithah power plant, and another to rebuild the Yusufiyah plant, which stopped operating in 1990. Iraq's Electricity Authority reportedly also has signed several other contracts with Chinese, Swiss, French, and Russian companies, to build 3,000 MW of additional power generating capacity. These contracts require UN approval. In December 2000, it was reported that a Chinese company had completed work on the Abdullah power plant north of Baghdad.

Sources for this report include: Agence France Presse; Associated Press; BBC Summary of World Broadcasts; Business Week; CIA World Factbook 2001; Dow Jones News Wire service; Economist Intelligence Unit ViewsWire; Financial Times; Gulf News; Hart's Africa Oil and Gas; Interfax News Agency; Janet Matthews Information Services (Quest Economic Database); Los Angeles Times; Middle East Economic Survey; New York Times; Oil & Gas Journal; Oil Daily; Petroleum Economist; Petroleum Intelligence Weekly; Platt's Oilgram News; Reuters News Wire; Russian Oil and Gas Report; UN Office of the Iraq Programme; U.S. Energy Information Administration; U.S. Department of State; Washington Post; Weekly Petroleum Argus; WEFA Middle East Economic Outlook; World Markets Online; Xinhua.

COUNTRY OVERVIEW

Head of Government: Saddam Hussein al-Takriti
Deputy Prime Minister: Tariq 'Aziz
Independence: October 3, 1932
Population (7/01E): 23.3 million
Location/Size: Middle East/168,709 square miles, slightly more than twice the size of Idaho.
Major Cities: Baghdad (capital), Basra, Mosul, Karbala, Kirkuk
Languages: Arabic, Kurdish
Ethnic Groups: Arab 75-80%, Kurdish 15-20%, Turkmen, Assyrian, or other 5%
Religions: 97% Muslim (Shi'a 60-65%, Sunni 32-37%), Christian or other (3%)
Defense (8/98E): Army (375,000); Air Force (35,000); Navy (2,000). Iraq is believed to have 2,000 battle tanks and 300-350 aircraft (of which as few as 100 may be serviceable)

ECONOMIC OVERVIEW

Currency: Iraqi Dinar (ID)
Unofficial Exchange Rate (8/01E): US$1 = ID1,900 (note: the official rate is US$1 = ID 0.3)
Gross Domestic Product (at market exchange rates) (2000E): $31.8 billion (around one-third of 1989's economic output)
Gross Domestic Product (at purchasing power parity rates) (2000E): $57 billion
Real GDP Growth Rate (2001E): -10% **(2002F):** 15%
Inflation Rate (consumer prices) (2001E): 80% **(2002F):** 50%
Major Export Products (2000): Crude oil and oil products (regulated by the United Nations)
Major Import Products (2000): Food, medicine, consumer goods (regulated by the United Nations)

Merchandise Exports (2000E): $20.6 billion
Merchandise Imports (2000E): $11.2 billion
Merchandise Trade Balance (2000E): $3.3 billion
Current Account Balance (2000E): $1.3 billion
Oil Export Revenues/Total Export Revenues (2001E): 95% or more
Total External Debt (2000E): $60 billion

ENERGY OVERVIEW

Minister of Oil: Amir Muhammad Rashid
Proven Oil Reserves (1/1/01E): 112.5 billion barrels (around 75 billion barrels of which has not yet been developed; potential reserves are as high as 200 billion barrels)
Oil Production (January-July 2001E): 2.29 million barrels per day (MMBD), of which 2.27 MMBD is crude oil
Oil Production Capacity, Maximum Sustainable (9/01E): 2.8-3.0 MMBD (some industry experts believe sustainable capacity is closer to 2.6 MMBD)
Oil Export Routes: Kirkuk-Ceyhan pipeline; Mina al-Bakr port; to Jordan and Turkey via truck; reportedly to Syria via the Kirkuk-Banias pipeline; smuggling by boat along the Gulf coast
Oil Consumption (2001E): 400,000-500,000 barrels per day (bbl/d)
Net Oil Exports (January-July 2001E): 1.8-1.9 MMBD
U.S. Oil Imports from Iraq (January-June 2001E): 616,000 bbl/d (up from 562,000 bbl/d during the first six months of 2000)
Crude Oil Refining Capacity (1/1/01): 417,500 bbl/d (according to *Oil and Gas Journal*)
Natural Gas Reserves (1/1/01E): 109.8 trillion cubic feet (Tcf)
Natural Gas Production (1999E): 112 billion cubic feet (Bcf)
Natural Gas Consumption (1999E): 112 Bcf
Electricity Generation Capacity (1999E): 6 gigawatts
Electricity Production (1999E): 29.4 billion kilowatthours

ENVIRONMENTAL OVERVIEW

Total Energy Consumption (1999E): 1.2 quadrillion Btu* (0.3% of world total energy consumption)
Energy-Related Carbon Emissions (1999E): 21.6 million metric tons of carbon (0.35% of world total carbon emissions)
Per Capita Energy Consumption (1999E): 51.7 million Btu (vs U.S. value of 355.8 million Btu)
Per Capita Carbon Emissions (1999E): 0.96 metric tons of carbon (vs U.S. value of 5.5 metric tons of carbon)
Energy Intensity (1998E): 34,800 Btu/ $1990 (vs U.S. value of 12,638 Btu/ $1990)**
Carbon Intensity (1998E): 0.63 metric tons of carbon/thousand $1990 (vs U.S. value of 0.19 metric tons/thousand $1990)**
Sectoral Share of Energy Consumption (1998E): Transportation (56.9%), Industrial (33.9%), Residential (9.2%), Commercial (0.0%)
Sectoral Share of Carbon Emissions (1998E): Transportation (61.1%), Industrial (28.9%), Residential (9.9%), Commercial (0.0%)
Fuel Share of Energy Consumption (1999E): Oil (89.3%), Natural Gas (10.1%), Coal (0.0%)
Fuel Share of Carbon Emissions (1999E): Oil (90.0%), Natural Gas (10.0%), Coal (0.0%)
Renewable Energy Consumption (1998E): 7 trillion Btu* (0% increase from 1997)
Number of People per Motor Vehicle (1998): 17.8 (vs U.S. value of 1.3)
Status in Climate Change Negotiations: Iraq is not a signatory to the United Nations Framework Convention on Climate Change or to the Kyoto Protocol.
Major Environmental Issues: Government water control projects have drained most of the inhabited marsh areas east of An Nasiriyah by drying up or diverting the feeder streams and rivers; a once sizable population of Shi'a Muslims, who have inhabited these areas for thousands of years, has been displaced; furthermore, the destruction of the natural habitat poses serious threats to the area's wildlife populations; inadequate supplies of potable water; development of Tigris-Euphrates Rivers system contingent upon agreements with upstream riparian Turkey; air and water pollution; soil degradation (salination) and erosion; desertification.

Major International Environmental Agreements: A party to the Law of the Sea and the Nuclear Test Ban. Has signed, but not ratified, Environmental Modification.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
**GDP based on EIA International Energy Annual 1999

OIL AND GAS INDUSTRY

Major Companies: The Oil Ministry oversees the nationalized oil industry through the *Iraq National Oil Company* (INOC). Autonomous companies under INOC include the *State Company for Oil Projects* (SCOP) - design and engineering of upstream and downstream projects; *Oil Exploration Company* (OEC) - exploration; *Northern Oil Company* (NOC) and *Southern Oil Company* (SOC) - upstream activities in northern/central and southern Iraq, respectively; *State Organization for Oil Marketing* (SOMO) - crude oil sales and OPEC relations; *Iraqi Oil Tankers Company* (IOTC); and various departments within the Ministry of Oil which run Iraq's internal pipeline systems, distribute oil products, operate downstream natural gas/LPG projects and gas bottling plants. In August 2001, Iraqi oil minister Rashid announced that a new state oil company ("Oil Projects Company") would be created to oversee development of new Iraqi discoveries.
Major Oil Fields (proven/probable reserves - billion barrels, 1998E): Majnoon (20), West Qurna (15), East Baghdad (11+), Kirkuk (10+), Rumaila (10+), Nahr Umar (6+), Halfaya (5), Zubair (4), Bai Hassan (2), Buzurgan (2), Khabbaz (2), Abu Ghirab (1.5), Nasiriya (2), Khormala (1.5)
Oil Refineries (crude refining capacity bbl/d, 2001E): Baiji North (150,000), Basra (140,000), Daura (100,000), Khanakin (12,000), Haditha (7,000), Muftiah (4,500), Qayarah (2,000) (Note: Iraq reportedly is constructing several 10,000-bbl/d mobil refineries).
Major Ports: Mina al-Bakr, Khor al-Amaya, Khor al- Zubair, Umm Qasr
Major Pipelines (current capacity): *Kirkuk-Ceyhan (Dortyol) Pipeline* - 0.9 MMBD; *Iraq-Saudi Arabia Pipeline* (IPSA1, 2) - 1.65 MMBD (closed by Saudi Arabia in 1990); *Banias Pipeline* - 0.3 MMBD (closed by Syria in 1983); *Iraq Strategic Pipeline* - less than 1.4 MMBD (reversible, internal transportation only)

Links

For more information on Iraq, see these other sources on the EIA web site:
Iraq Chronology: 1980-2001
EIA - Country Information on Iraq

Links to other U.S. government sites:
2001 CIA World Factbook - Iraq
U.S. Office of Foreign Assests Control (for information on Iraqi Sanctions)
U.S. State Department's Consular Information Sheet - Iraq
Library of Congress -- Iraq Country Study

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UN Office of the Iraq Program
Oil-for-Food Program, Basic Figures

UN Security Council Resolution 1153 on Iraq
UN Security Council Resolution 986 on Iraq
UN Security Council Resolutions Relating to Iraq
Permanent Mission of Iraq to the United Nations
Gulf Wire
MENA Petroleum Bulletin
University of Texas at Austin -- Iraq Page
Harvard University -- Iraq Page
University of Pennsylvania -- Middle East Center
Planet Arabia.com
AME Info Middle East Business Information

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